



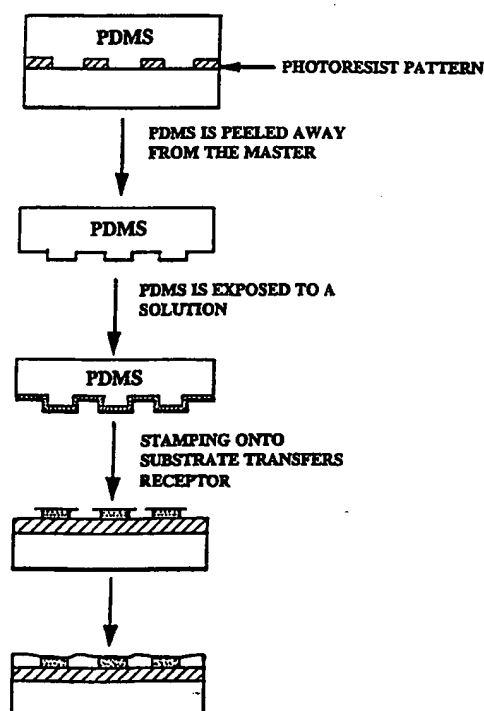
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : G01N 33/553, B41M 3/00, G01N 21/47	A3	(11) International Publication Number: WO 00/34781 (43) International Publication Date: 15 June 2000 (15.06.00)
(21) International Application Number: PCT/US99/27671 (22) International Filing Date: 22 November 1999 (22.11.99) (30) Priority Data: 09/210,016 11 December 1998 (11.12.98) US (71) Applicant: KIMBERLY-CLARK WORLDWIDE, INC. [US/US]; 401 North Lake Street, Neenah, WI 54956 (US). (72) Inventors: EVERHART, Dennis, S.; 230 Hereford Road, Alpharetta, GA 30004 (US). KAYLOR, Rosann, M.; 7480 Williamsberg Drive, Cumming, GA 30041 (US). MCGRATH, Kevin; 335 Hermitage Trail, Alpharetta, GA 30004 (US). (74) Agents: GREEN, Theodore, M. et al.; Jones & Askew, LLP, 2400 Monarch Tower, 3424 Peachtree Road, N.E., Atlanta, GA 30326 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 17 August 2000 (17.08.00)

(54) Title: PATTERNED BINDING OF FUNCTIONALIZED MICROSPHERES FOR OPTICAL DIFFRACTION-BASED BIOSENSORS

(57) Abstract

The present invention provides an inexpensive and sensitive system and method for detecting analytes present in a medium. The system comprises a diffraction enhancing element, such as functionalized microspheres, which are modified such that they are capable of binding with a target analyte. Additionally, the system comprises a polymer film, which may include a metal coating, upon which is printed a specific, predetermined pattern of analyte-specific receptors. Upon attachment of a target analyte to select areas of the polymer film, either directly or with the diffraction enhancing element, diffraction of transmitted and/or reflected light occurs via the physical dimensions and defined, precise placement of the analyte. A diffraction image is produced which can be easily seen with the eye or, optionally, with a sensing device.



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INTERNATIONAL SEARCH REPORT

In: International Application No.

PCT/US 99/27671

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/553 B41M3/00 G01N21/47

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01N B41M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 27417 A (KIMBERLY CLARK CO) 25 June 1998 (1998-06-25)	23-36, 41
Y	page 9, line 20 -page 10, line 10; claims 1-49; examples 1-8	1-22, 37-40
Y	WO 94 15193 A (SIENNA BIOTECH INC) 7 July 1994 (1994-07-07) page 21, line 17-21	19-22, 37-40
Y	US 5 599 668 A (STIMPSON DONALD I ET AL) 4 February 1997 (1997-02-04) column 15, line 18-57 column 23, line 29-39	19-22, 37-40
Y	WO 96 29629 A (HARVARD COLLEGE) 26 September 1996 (1996-09-26) page 24, line 26 -page 25, line 13	1-22
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Date of the actual completion of the international search

31 May 2000

Date of mailing of the international search report

07/06/2000

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>MRKSICH M ET AL: "PATTERNING SELF-ASSEMBLED MONOLAYERS USING MICROCONTACT PRINTING: A NEW TECHNOLOGY FOR BIOSENSORS" TIBTECH, GB, CAMBRIDGE, vol. 13, 1 June 1995 (1995-06-01), pages 228-235, XP002060826 the whole document</p>	1-41

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